# A/L ICT 2022 (Gr.13)

# Marking Scheme

# Term – 4, 2022 Examination

# Field Work Center (FWC)




*This document /scheme has been prepared for the use of marking examination paper.*
*Some changes and alternative anaswers would be made by the teachers.*
**Amendments to be included.**

## Part – I – Suggested Answers

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **(1)** | *5* | **(11)** | *3* | **(21)** | *2* | **(31)** | *2* | **(41)** | *4* |
| **(2)** | *3* | **(12)** | *5* | **(22)** | *3* | **(32)** | *1* | **(42)** | *2* |
| **(3)** | *3* | **(13)** | *1* | **(23)** | *4* | **(33)** | *2* | **(43)** | *3* |
| **(4)** | *2* | **(14)** | *4* | **(24)** | *4* | **(34)** | *2* | **(44)** | *1* |
| **(5)** | *5* | **(15)** | *3* | **(25)** | *5* | **(35)** | *5* | **(45)** | *3* |
| **(6)** | *4* | **(16)** | *3* | **(26)** | *5* | **(36)** | *5* | **(46)** | *1* |
| **(7)** | *5* | **(17)** | *1* | **(27)** | *1* | **(37)** | *5* | **(47)** | *2* |
| **(8)** | *5* | **(18)** | *3* | **(28)** | *1* | **(38)** | *2* | **(48)** | *1* |
| **(9)** | *3* | **(19)** | *5* | **(29)** | *3* | **(39)** | *4* | **(49)** | *3* |
| **(10)** | *2* | **(20)** | *1* | **(30)** | *2* | **(40)** | *5* | **(50)** | *3* |

## Part – II A – Suggested Answers

<table>
<tr><th>Question No.</th><th></th><th>Marks</th></tr>
<tr><td>(1)(a)(i)</td><td>CREATE TABLE Persons(PersonID VARCHAR(6) PRIMARY KEY, FirstName VARCHAR(20), LastName VARCHAR(20), City VARCHAR(15));</td><td>2 marks</td></tr>
<tr><td>(1)(a)(ii)</td><td>INSERT INTO Persons VALUES(‘P001’,’Jamuna’,’Sivarasa’,’Jaffna’);</td><td>1 marks</td></tr>
<tr><td>(1)(a)(iii)</td><td><table><tr><th><u>PersonID</u></th><th>FirstName</th><th>City</th></tr><tr><td>P003</td><td>Jamuna</td><td>Jaffna</td></tr><tr><td>P005</td><td>Vimali</td><td>Jaffna</td></tr></table></td><td>1 marks</td></tr>
<tr><td>(1)(b)(i)</td><td>• Reduces redundant data.<br>• Provides data consistency within the database.<br>• More flexible database design.<br>• Higher database security.<br>• Better and quicker execution.<br>• Greater overall database organization.<br>• Reducing data anomalies such as insert / delete / update.</td><td>2 marks</td></tr>
</table>

| | | |
|---|---|---|
| **(1)(b)(ii)** | It is in 1NF.<br>Because it contains partial functional dependencies (DepartmentNo → Department, EmployeeNo → EmployeeName) | **2 marks [1+1]** |
| **(1)(b)(iii)** | 2NF<br>Employee (EmployeeNo, DepartmentNo, EmployeeName)<br>Department (DepartmentNo, Department) | **2 marks [1+1]** |
| | | |
| **(2)(a)(i)** | 24 | **2 marks** |
| **(2)(a)(ii)** | It multiplies all the integers up to user input (4x3x2x1=24). Or<br>It gives the factorial value of the input value. | **2 marks** |
| **(2)(b)** | Input L, B<br>P = 2 x (L+B)<br>A = L*B<br>Display P, A | **4 marks [1 for each]** |
| **(2)(c)** | Variables are used to store data in programming. | **2 marks** |
| | | |
| **(3)(a)** | (i) Slotted ALOHA<br>(ii) Bandwidth<br>(iii) Amplitude modulation<br>(iv) Parity bit<br>(v) Pure ALOHA<br>(vi) Circuit switching | **3 marks [0.5 for each]** |
| **(3)(b)** | (i) Cloud computing<br>(ii) Infrastructure as a service-IaaS<br>(iii) Platform as a service-PaaS<br>(iv) Software as a service-SaaS<br>(v) Stealing / phishing<br>(vi) Plagiarism | **3 marks [0.5 for each]**<br>. |

| | | |
|---|---|---|
| **(3)(b)** | 1 - ❷<br>2 - ❹<br>3 - ❸<br>4 - ❶ | **4 marks [1 for each]** |
| | | |
| **(4)(a)(i)** | ① Ready<br>② Running<br>③ Blocked<br>④ Swapped out and waiting | **4 marks [1 for each]** |
| **(4)(a)(ii)** | Timeout<br>• Process reaching the maximum allowable time for uninterrupted execution / Process timeout.<br>• OS assigns higher levels of priority process.<br>• OS decides to let another task runs. | **2 marks [1+1]** |
| **(4)(a)(iii)** | I/O wait<br>Waiting for resources such as input / output. | **2 marks [1+1]** |
| **(4) (b)** | • Linked allocation has excess pointer overheads / memory required to store the pointers **or**<br>• (4 x 124 bytes = 496 bytes needed for total blocks, but additional 4 bytes is needed for pointer. | **2 marks** |
| | | |

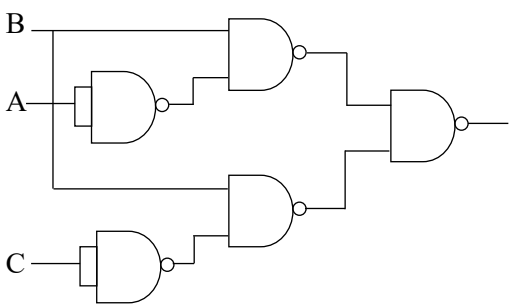
## Part – II B – Suggested Answers

| Question No. | | |
|---|---|---|
| **(5)(a)** | $F = \bar{A}B\bar{C} + \bar{A}BC + AB\bar{C}$ | **3 marks** |
| **(5)(b)** | | **4 marks**<br>*[0.5 for each row]* |
| **(5)(c)** | | **4 marks** |
| **(5)(d)** | | **4 marks** |

| A | B | C | Output (F) |
|---|---|---|---|
| 0 | 0 | 0 | **0** |
| 0 | 0 | 1 | **0** |
| 0 | 1 | 0 | **1** |
| 0 | 1 | 1 | **1** |
| 1 | 0 | 0 | **0** |
| 1 | 0 | 1 | **0** |
| 1 | 1 | 0 | **1** |
| 1 | 1 | 1 | **0** |

| AB \ C | 0 | 1 |
|---|---|---|
| 00 | **0** | **0** |
| 01 | **1** | **1** |
| 11 | **1** | **0** |
| 10 | **0** | **0** |

$\bar{A}B + B\bar{C}$



**(6)**

**Table**

**8 marks**

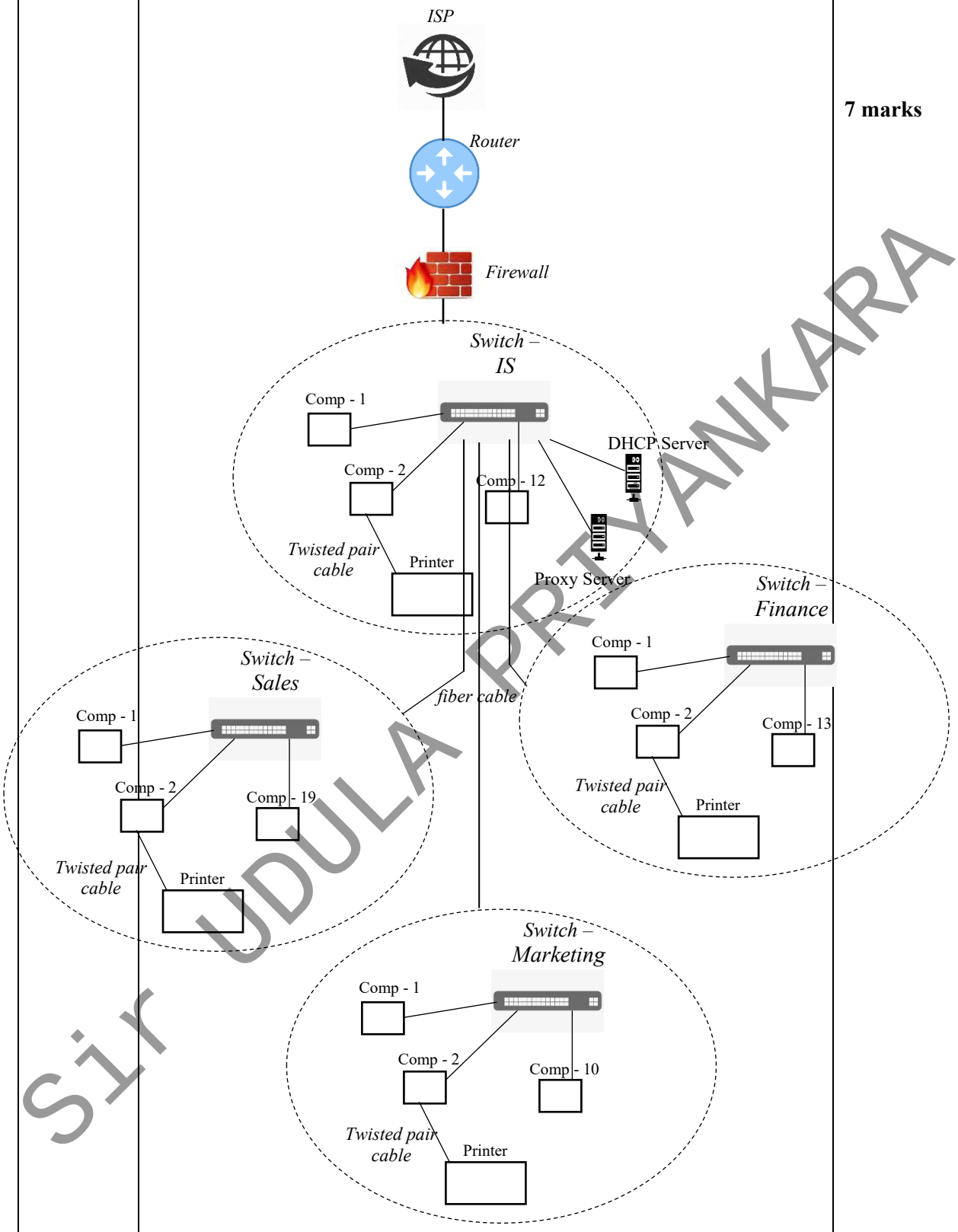
Each row – 2 marks

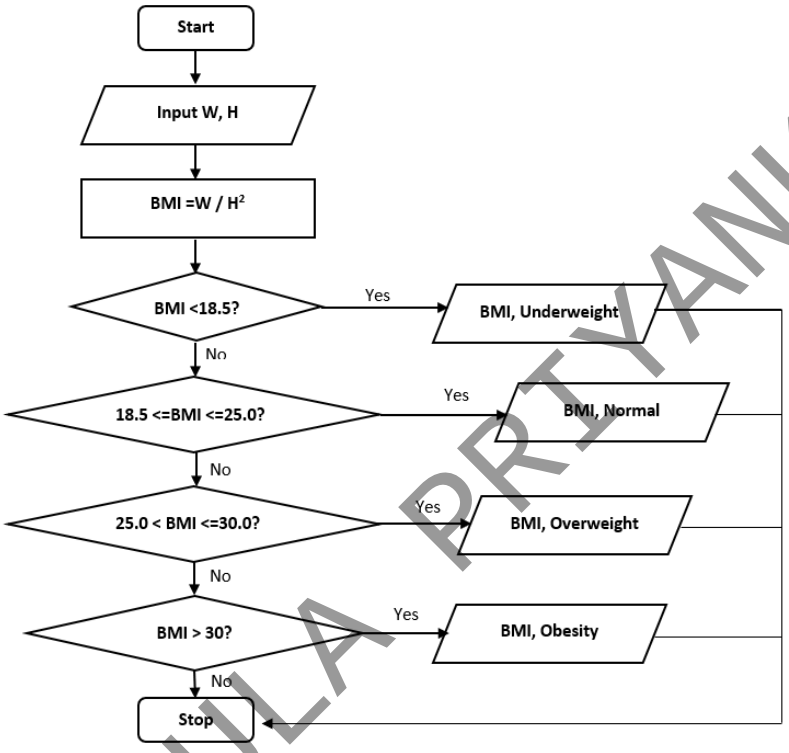
| Departments | Network address | Broadcast address | Subnet mask | Usable IP address range |
|---|---|---|---|---|
| *Information Systems* | *195.4.3.0* | *195.4.3.15* | *255.255.255.240* | *195.4.3.1-195.4.3.14* |
| *Sales* | *195.4.3.16* | *195.4.3.47* | *255.255.255.224* | *195.4.3.17-195.4.3.46* |
| *Finance* | *195.4.3.48* | *195.4.3.63* | *255.255.255.240* | *195.4.3.49-195.4.3.62* |
| *Marketing* | *195.4.3.64* | *195.4.3.79* | *255.255.255.40* | *195.4.3.65-195.4.3.78* |

*<u>For diagram</u>*

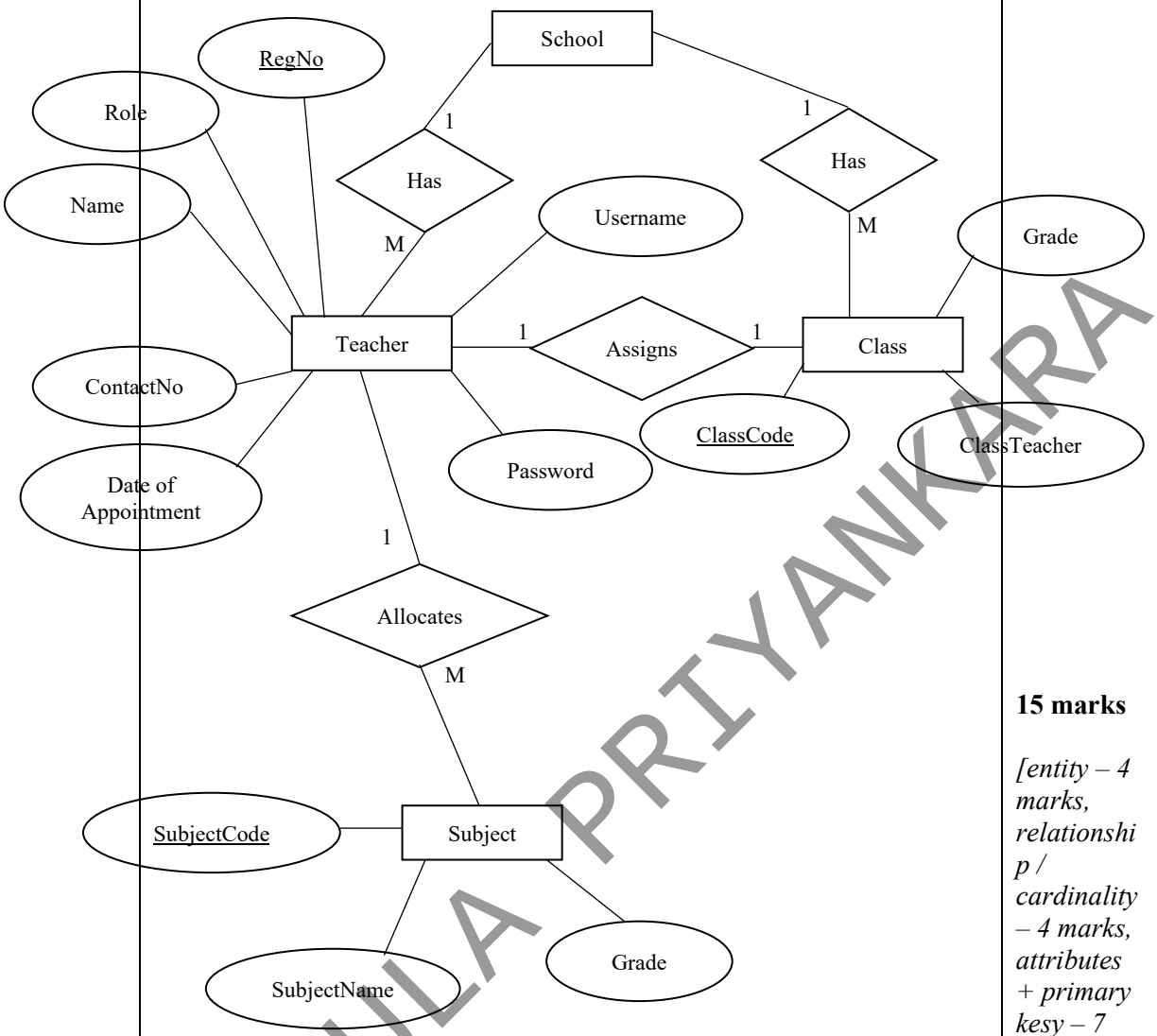
*0.5+0.5+0.5+0.5 marks for each switch / labels*
*0.5+0.5 marks for two servers in proper place*
*0.5 marks for firewall in proper place*
*0.5 marks for router in proper place*
*0.5 marks for ISP/ Internet connectivity in proper place*
*0.5 marks for fiber cable label in proper place*
*0.5 marks for twisted pair cable label for all places*
*0.5 marks for printers label for all places*
*1 marks for overall correctness*

**7 marks**



| | | |
|---|---|---|
| **(7)(a)** | *Begin*<br>*Input W, H*<br>*BMI = W / $H^2$*<br>*Display BMI*<br>*End* | **5 marks [1 for each]** |
| **(7)(b)** |  | **10 marks**<br>**[1 for each output, 1 for each condition, 1 for input, 1 for process]** |

**(8)**




**15 marks**

*[entity – 4 marks, relationship / cardinality – 4 marks, attributes + primary kesy – 7 marks]*

**(9)(a)**

**Functional requirements**

*Services expected by the user or services provided by the system.*
*Defines the functions that a system must be able to perform successfully.*

**Non-functional requirements**

*System's constraints / limitations.*
*Defines the additional functions that a system must not be able to perform.*

**3 marks [1.5+1.5]**

**(9)(b)**

*Functional requirements – B,C, E, F*
*Non-functional requirements – A, D, G, H*

**4 marks [0.5x8]**

| | | |
|---|---|---|
| **(9)(c)** | ① Order<br>② Order<br>③ Warehouse<br>④ Customer name + address<br>⑤ Invoice<br>⑥ Shipping books<br>⑦ Books<br>⑧ Invoice statements | **8 marks**<br>**[1x8]** |

**Final Marks Distributions**

**Part – I** 2 x 50 = 100 marks
**Part – II A** 10 x 4 = 40 marks
**Part – II B** 15 x 4 = 60 marks

**Total: 200 / 2 = 100 marks**

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